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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202			MAURO JR, THOMAS J	
			ART UNIT	PAPER NUMBER
			2143	

DATE MAILED: 02/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/808,005	Applicant(s) VIOLET ET AL.	
	Examiner Thomas J. Mauro Jr.	Art Unit 2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,9 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,9 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed on October 18, 2004. Claims 1-6 and 9-10 remain pending and are again presented for examination. A formal action on the merits of claims 1-6 and 9-10 follows.

2. Objections made against the specification and drawings have been obviated by the changes made with the filing of the above amendment.

Response to Arguments

3. Applicant's arguments filed October 18, 2004 have been fully considered but they are not persuasive.

(A) Applicant contends that the combination of Passera and Krum fails to teach "an executable master application for managing the tasks of each slave computer as a function of their availability" whereas claim 1 recites this limitation.

In response to argument (A), the Examiner respectfully disagrees with the applicant's contention as the assigning of jobs to each slave computer by estimating the time each slave computer could complete the job does read on the broad claim language "as a function of their availability." By the master taking into account both estimated completion time (based upon start time of course) and resource load, master is directly taking into consideration the

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availability of the server to complete the job, i.e. including when the job will be started based upon load, estimated time to finish the job, etc. See Krum Col. 2 lines 53-61, Col. 3 lines 6-31 and Col. 4 lines 29-46. Thus, if one slave's availability to start the job is longer/shorter than another slave, additional considerations such as resource load and estimated completion time allow the master to manage jobs better to achieve faster execution and completion. Thus applicant's argument (A) is moot as Krum clearly teaches that which the applicant claims.

(B) Applicant contends that there is no motivation to combine the teachings of Passera and Krum.

In response to argument (B) that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the reason to combine is a combination between motivation in Krum along with the knowledge available to one of ordinary skill in the art. Krum looks to increase the efficiency and speed with which tasks/jobs are executed and completed. It would have been obvious that anybody operating a multi-computer job processing system would want to increase the speed at which tasks are completed. In addition, it was widely known that load balancing, of

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which this is a form, sought to distribute requests/jobs by a load balancer, i.e. master, to servers, i.e. slaves, based upon availability/efficiency. This is merely an extension of this notoriously well-known concept. Furthermore, Applicant's contention that system would be non-operational is moot as applicant is moot as storing and executing applications for configuring is completely different from determining which slave to disseminate jobs. Therefore, this attempt to refute the combination is unfounded.

(C) Applicant contends that Passera and Krum fail to teach an algorithm for dynamically configuring the other computers as slave computer, whereas claim 1 allegedly recites this limitation.

In response to argument (C), Passera discloses a neural network which builds and then applies a model to a given set of computer elements to thereby configure nodes as masters and slaves. See Rejection below and Col. 6 lines 1-9, 21-29 and 38-67 along with Col. 9 lines 23-57. These applications which build/configure the nodes are the algorithms that are executed to carry out the configuration process. For example, ApplyModel_Master is code run on the master to configure itself to be the master for a group of nodes based up the neural tree. Thus, applicant's argument is in fact taught by Passera and is therefore moot. Furthermore, applicant argues for "dynamically configuration", however, this argument is not commensurate with the claim language and therefore will not be addressed.

(D) Applicant contends that Passera does not teach that a master application stored in the master processor is executed to configure the machine, whereas claim 2 calls for this limitation.

In response to argument (D), the Examiner points out that in the applicant's own remarks (See Page 5) that "according to PASSERA, master and slave computers **store and execute** the appropriate application for configuring themselves. Thus applicant admits that Passera does in fact teach executing the code to configure the machine. Further evidence can be found of this teaching in Passera at Col. 10 lines 48-52 and Col. 11 lines 14-25 thereby causing this argument to be moot.

(E) Applicant contends that Weiss fails to teach using an electronic signature for communications between master and slave devices, whereas claim 5 calls for this limitation.

In response to argument (E), the Examiner respectfully disagrees and asserts that Weiss undeniably teaches sending a unique signature between master and slave processing areas. Because both of these processing areas reside in computers and electronic devices, signatures are inherently electronic as all communications between devices is electronically transmitted as packets carry the messages between processing areas. See Weiss Col. 10 lines 35-50. Weiss's

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processing areas communicate between master and slave areas and is therefore a communication device which is able to send and receive messages. Further evidence of an electronic communication system can be found in Weiss at Col. 11 lines 33-67 – Col. 12 lines 1-34. Thus the Examiner demurs to the applicant's contention as computers and message passing between processing areas with unique signatures provides for communication and electronic signatures.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Passera et al. (U.S. 5,909,681) in view of Krum (U.S. 6,618,820).

Regarding claim 1, Passera teaches a computational data processing system, comprising:
an assembly of networked computers (12, ...22) in each of which is stored at least one computational application [Passera -- Figures Col. 5 lines 50-67 – Col. 6 lines 1-9 – Plurality of processors networked together, i.e. networked computers, contain at least one

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application, i.e. BuildModel_Master, BuildModel_Slave, ApplyModel_Master or ApplyModel_Slave],

and a data processing machine (10) for storing computational data which is linked to the network and in communication with the computers (12, ... 22) [Passera -- **Figure 1, Col. 5 lines 64-67 and Col. 10 lines 31-38 – Data set is required and is obviously stored in a data structure on a storage device of the control/master computer. All computers belong to the network, therefore, storage is accessible to other machines],** at least one of the computers (12) operating as master computer and at least some of the other computers (14, ... 22) operating as slave computer [Passera -- **Figures 1 and 2 and Col. 6 lines 10-20 – System comprises both master computer and slave computer(s)],**

characterized in that at least one of the computers (12) comprises, stored in memory, an algorithm for configuring the other computers of the network as slave computers and an executable master application for managing the tasks of each slave computer [Passera -- **Figures 3, 13, 16 and 17 and Col. 6 lines 1-9, lines 21-29, lines 38-67 and Col. 9 lines 23-57 – Both master and slave computers store and execute the appropriate application for configuring themselves to execute processes on a data set when directed by the master] and of corresponding computational data which are stored in the storage machine (10) [Passera -- **Figure 1, Col. 5 lines 64-67 and Col. 10 lines 31-38 – Data set is required and is obviously stored in a data structure on a storage device of the control/master computer].****

Passera fails to explicitly teach managing tasks of the slave computers as a function of their availability for the assignment.

Krum, however, discloses a processing system for servicing computational tasks which uses

availability and processing time to decide which slave will process a given task [**Krum -- Col. 2 lines 53-61 and Col. 3 lines 6-31**].

Both Passera and Krum are concerned with splitting up data processing computation tasks between multiple slave computers with a managing master.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the splitting up of tasks for processing based upon availability and processing time, as taught by Krum, into the invention of Passera, in order to provide better and more efficient handling for high demand jobs and faster processing and completion of tasks.

Regarding claim 2, Passera-Krum teach the invention substantially as claimed, as aforementioned in claim 1 above, including a system characterized in that the said configuring algorithm and the said master application are loaded into the network computers, the execution of the said configuring algorithm constitutes a means for configuring the computer as a master [**Passera -- Figure 3, Col. 6 lines 1-20 and Col. 6 lines 38-67 – Col. 7 lines 1-32 – BuildModel_Master program code is executed on the machine, which is to be assuming the role of Master in the system, in order to configure the machine for its role as master**].

Regarding claim 3, Passera-Krum teach the invention substantially as claimed, as aforementioned in claim 2 above, including a system characterized in that each computer furthermore comprises an executable slave application under the control of the master computer (12) when this computer is configured as slave, for the local management of the computational application [**Passera -- Figure 13, Col. 6 lines 1-9, Col. 9 lines 23-29, Col. 9**

lines 42-67 – Col. 10 lines 1-27 and Col. 11 lines 14-49 – Each slave contains program code, i.e. BuildModel_Slave and ApplyModel_Slave, to configure the slaves and to control the execution once the data set is sent to a slave for processing], the said slave application comprising software means for talking to the storage machine (10) [Passera -- Figure 1, Col. 5 lines 64-67 and Col. 10 lines 31-38 – Data set is required and is obviously stored in a data structure on a storage device of the control/master computer. In order for the slaves to receive, process and store data, they must contain code to “talk” to machine housing data set].

Regarding claim 4, Passera-Krum teach the invention substantially as claimed, as aforementioned in claim 3 above, but fails to explicitly teach using the file transfer protocol (FTP) for exchanging data.

The use of FTP for transferring files from a client to a server was notoriously well known and obvious in the art. This protocol is commonly and extensively used throughout the world of networking for transferring data from one machine to another.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of FTP for exchanging data into the invention of Passera-Krum in order to provide a fast, easy and well-known protocol means for transferring information/data between machines.

Regarding claim 6, Passera-Krum teach the invention substantially as claimed, as aforementioned in claim 1 above, including a system characterized in that the configuring algorithm comprises software means for formulating a man/machine interface (24) suitable for display on a screen of each computer for the configuring of the said computers [Passera -- **Figure 1, Col. 5 lines 50-67 – Col. 6 lines 1-9, Col. 6 lines 38-42 and Col. 11 lines 26-28 – Code which is used to develop neural network and provide training is required and therefore was obviously created by a user using an interface. Thus, software used to code the programs, i.e. BuildModel_Master, etc. was used to display the code and provide the resources for the developer to code the program, namely, the man/machine interface**].

6. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Passera et al. (U.S. 5,909,681) and Krum (U.S. 6,618,820), as applied to claim 1 above, in view of Weiss et al. (U.S. 6,071,190).

Regarding claim 5, Passera-Krum teach the invention substantially as claimed, as aforementioned in claim 1 above, but fail to explicitly teach having a signature and comparing the signature of a message from the slave with the signature of a master.

Weiss, however, discloses a system which imposes security on both master and slave devices by using a unique signature to discern the validity of messages between a master and slave device [Weiss -- **Col. 10 lines 35-50**].

It would have been obvious to one of ordinary skill in the art at the time the invention was made

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to use a unique signature for imposing security between communications of master and slave devices, as taught by Weiss into the invention of Passera-Krum, in order to provide security for processing commands so that the validity of each command would be determined to prevent the illegal or wrongful issuing of processing commands by hostile or unauthorized machines.

Regarding claim 9, Passera-Krum-Weiss teach the invention substantially as claimed, as aforementioned in claim 1 above, including:

defining at least one group of computers by configuring for each group a computer (12, ... 22) as master computer and other computers as slave computers [**Passera -- Figures 1 and 2 and Col. 6 lines 10-20 -- System comprises both master computer and slave computer(s);**

assigning, to each of the slave computers, one or more computational applications and corresponding computational data [**Passera -- Col. 6 lines 1-9, Col. 9 lines 42-47, Col. 10 lines 31-38 and Col. 11 lines 14-24 -- Each slave computer executes both a BuildModel_Slave and ApplyModel_Slave program to process data set];**

comparing an electronic signature sent by each slave computer to the master computer with a corresponding signature stored in the latter; and in the case of correspondence between the said signatures [**Weiss -- Col. 10 lines 35-50 -- Electronic signature of message, i.e. data, sent from a master/slave is compared to that stored in the master/slave to discern the validity of the message or data];**

running, for each slave computer, the computational application or applications as a function of their availability, using the corresponding computational data [**Krum -- Col. 2 lines 53-61 and Col. 3 lines 6-31 -- Tasks are processed by the slave computers based upon the**

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availability of a processor to complete a task the soonest and/or within a given time frame];

and

retrieving the data resulting from the execution of the applications carried out in parallel, in each slave computer [**Passera -- Col. 5 lines 54-56 – Workstation receives output data after tasks are carried out by slave processors, i.e. computers**].

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Passera et al. (U.S. 5,909,681), Krum (U.S. 6,618,820) and Weiss et al. (U.S. 6,071,190), as applied to claim 9 above, in view of Colyer et al. (U.S. 6,151,621).

Regarding claim 10, Passera-Krum-Weiss teach the invention substantially as claimed, as aforementioned in claim 9 above, but fail to explicitly teach using the model for the computation of molecular models on stored molecular data.

Colyer, however, discloses master/slave processing system which can be used as an application to compute three-dimensional molecular models [**Colyer -- Col. 10 lines 45-49**].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the system as an application to compute three dimensional molecular models, as taught by Colyer into the invention of Passera-Krum-Weiss, in order to extend the system for use in computational intensive applications which require the necessary processing power generated by the aforementioned system.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas J. Mauro Jr. whose telephone number is 571-272-3917. The examiner can normally be reached on M-F 8:00a.m. - 4:30p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on 571-272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TJM
February 8, 2005



DAVID WILEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100